
Fish and Wildlife Service

50 CFR Part 17

**Endangered and Threatened Wildlife
and Plants; Proposed Endangered
Status for *Cardamine micranthera*
(Small-anthered Bittercress)**

AGENCY: Fish and Wildlife Service,
Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to list *Cardamine micranthera* (small-anthered bittercress), a perennial herb limited to three populations in North Carolina, as an endangered species under the authority of the Endangered Species Act of 1973, as amended (Act). *Cardamine*

micranthera is endemic to Stokes and Forsyth Counties, North Carolina, and is endangered by conversion of habitat for agricultural and silvicultural purposes, floods, stream channelization and impoundment, and encroachment of exotic plants.

This proposal, if made final, would implement Federal protection provided by the Act for *Cardamine micranthera*. The Service seeks data and comments from the public on this proposal.

DATES: Comments from all interested parties must be received by April 3, 1989. Public hearing requests must be received by March 20, 1989.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, Asheville Field Office, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Ms. Nora Murdock at the above address (704/259-0321 or FTS 672-0321).

SUPPLEMENTARY INFORMATION:

Background

Cardamine micranthera, first described by R. C. Rollins (1940) from material collected in North Carolina in 1939, is an erect, slender, perennial herb with fibrous roots and one (or rarely more) simple or branched stem growing 0.2 to 0.4 meter tall. Basal leaves are 1 to 2 centimeters (cm) long, 0.5 to 0.6 cm wide, crenate, with one (or rarely two) pair of small lateral lobes. The stem leaves are alternate and mostly unlobed, 1 to 1.5 cm long, crenate and cuneate. Flowers and fruits are borne in April and May. The flowers, subtended by leafy bracts, have four white petals, six stamens, and small, round anthers. The fruit is a silique 0.8 to 1.2 cm long and approximately 1 millimeter (mm) in diameter with a beak 1 to 1.2 mm long. The brown seeds are approximately 1 mm long. *Cardamine micranthera* can be distinguished from its most similar relative, *Cardamine rotundifolia*, by its much smaller, nearly orbicular (instead of oblong) anthers, smaller flowers, and more angulate leaves. In *Cardamine micranthera*, the anthers are about 0.5 mm long, and the petals are 1.2 to 2 mm wide; whereas in *Cardamine rotundifolia*, the narrowly oblong anthers measure from 1.2 to 1.6 mm long, and the petals are 2.5 to 3.5 mm wide. Growth habits of the two species differ as well; *Cardamine rotundifolia* has decumbent stems with proliferating branches arising both from the main

axis and often from the inflorescences. *Cardamine micranthera* has erect or only basally decumbent stems with no proliferating branches. Also, the siliques and styles of *Cardamine micranthera* are only about half as long as those of *Cardamine rotundifolia* (Rollins 1940, Cooper *et al.* 1977, Radford *et al.* 1964).

Cardamine micranthera is endemic to seepages, streambanks, and moist woods along a few small streams in Stokes and Forsyth Counties, North Carolina. The single population in Forsyth County was destroyed when the site was converted to cattle pasture in the early 1960s. Repeated searches for the single population known at that time from Stokes County were unsuccessful, and the species was presumed extinct (Cooper *et al.* 1977). In 1985, nearly 30 years after the species had last been seen, it was again located in Stokes County by S. W. Leonard (1986). Subsequent searches by A. Weakley (North Carolina Natural Heritage Program) and N. Murdock (Service) resulted in the discovery of two more populations in Stokes County. All three remaining populations are located on privately owned lands. The continued existence of this species is threatened by conversion of its habitat to pasture, habitat destruction and/or desiccation associated with logging, encroachment by aggressive nonnative species such as Japanese honeysuckle (*Lonicera japonica* Thunberg), impoundment or channelization of the small stream corridors it occupies, and flooding and associated scouring of its streambank habitat.

The remaining populations are small in numbers of plants and extent of occupied habitat. The smallest population consists of only 3 plants; the largest, consisting of about 200 plants, occupies less than $\frac{1}{10}$ of a mile of streambank. With all three remaining sites in private ownership, the species is extremely vulnerable to extirpation resulting from habitat alteration.

Federal government actions on this species began with section 12 of the Endangered Species Act of 1973, which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document Number 94-51, was presented to Congress on January 9, 1975. The Service published a notice in the July 1, 1975, *Federal Register* (40 FR 27832) of its acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2) (now section 4(b)(3)) of the Act and of its intention thereby to review the status of the plant taxa named within.

Cardamine micranthera was included in the July 1, 1975, notice of review. On December 15, 1980, the Service published a revised notice of review for native plants in the *Federal Register* (45 FR 82480). *Cardamine micranthera* was included in that notice as a category 1 species. Category 1 species are those species for which the Service currently has on file substantial information on biological vulnerability and threats to support proposing to list them as endangered or threatened. A revision of the 1980 notice that maintained *Cardamine micranthera* in this category was published on September 27, 1985 (50 FR 39526).

Section 4(b)(3)(B) of the Endangered Species Act, as amended in 1982, requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This is the case for *Cardamine micranthera* because of the acceptance of the 1975 Smithsonian report a petition. In October of 1983, 1984, 1985, 1986, 1987, and 1988, the Service found that the petitioned listing of *Cardamine micranthera* was warranted but precluded by other listing actions of a higher priority and that additional data on vulnerability and threats were still being gathered. Publication of this proposal constitutes the final 1-year finding that is required.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. The species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Cardamine micranthera* Rollins (small-anthered bittercress) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Three populations of *Cardamine micranthera* are known to exist in Stokes County, North Carolina. One other historically known population has been extirpated due to conversion of the habitat to cattle pasture. The three remaining populations are located on privately owned lands and are small and extremely vulnerable to extirpation. Activities that could further threaten the continued existence of *Cardamine*

micranthera, if not undertaken in a manner consistent with protection of the species, include impoundment, channelization, conversion of the habitat to pasture, logging, encroachment of exotic species such as *Lonicera japonica*, and flooding (which will be discussed in detail under Factor E below).

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* *Cardamine micranthera* is not currently a significant component of the commercial trade in native plants. However, because of its small and easily accessible populations, it is vulnerable to taking and vandalism that could result from increased specific publicity.

C. *Disease or predation.* Not applicable to this species at this time.

D. *The inadequacy of existing regulatory mechanisms.* *Cardamine micranthera* will soon be added as an endangered species to the State list of endangered species in North Carolina (R. Sutter, North Carolina Plant Protection Program, personal communication, 1988) and thus will be afforded legal protection in that State by North Carolina General Statutes, §§ 106–202.12 to 106–202.19 (Cum. Supp. 1985), which provide for protection from intrastate trade (without a permit), for monitoring and management of State-listed species, and prohibit taking of plants without written permission of landowners. State prohibitions against taking are difficult to enforce and do not cover adverse alterations of habitat, such as channelization, impoundment, or conversion for agricultural or silvicultural use. Section 404 of the Federal Water Pollution Control Act could potentially provide some protection for the habitat of *Cardamine micranthera*; however, most, if not all, of the sites where it occurs do not meet the wetlands criteria of the Federal Water Pollution Control Act. The Endangered Species Act would provide additional protection and encouragement of active management for *Cardamine micranthera*.

E. *Other natural or manmade factors affecting its continued existence.* As mentioned in the "Background" section of this proposed rule, the three remaining populations of this species are small in numbers of individual stems and in area covered by the plants. In some cases, aggressive exotic species such as *Lonicera japonica* have invaded adjacent areas and threaten to invade this species' habitat, which could result in the elimination of *Cardamine micranthera*. The natural habitat of this species consists of small streambank seeps and, secondarily, adjacent

sandbars and stream edges. At one of the remaining populations, the original seep habitat can no longer be found, and the surviving plants now exist only in the streambed itself on two small sandbars. In this situation, the species is highly vulnerable to natural catastrophes such as floods, which could scour the streambed and eliminate the few remaining plants. In unaltered habitat, where most of the plants occupy the seepages above the actual stream channel, flooding and scouring of the streambed is not as potentially threatening to the species since scoured areas where plants have been eliminated are probably easily recolonized by the populations in the seeps.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list *Cardamine micranthera* as endangered. With only three populations remaining in existence and one having already been eliminated; and with all the remaining populations being small, highly vulnerable, and located on privately owned lands, the species definitely warrants protection under the Act. Endangered status seems appropriate because of the imminent serious threats facing the three remaining populations. Critical habitat is not being designated for the reasons discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Cardamine micranthera* at this time. As discussed under Factor B in the "Summary of Factors Affecting the Species" section, *Cardamine micranthera* is threatened by taking and vandalism. Such activities are difficult to enforce against and only regulated by the Act with respect to plants in cases of (1) removal and reduction to possession from lands under Federal jurisdiction, or malicious damage or destruction on such lands; and (2) removal, cutting, digging up, or damaging or destroying in knowing violation of any State law or regulation, including State criminal trespass law. Publication of critical habitat descriptions would make the species even more vulnerable and increase State enforcement problems.

All involved parties and landowners will be notified of the location and importance of protecting and managing this species' habitat.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in the destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may adversely affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal activities that could impact *Cardamine micranthera* and its habitat in the future include, but are not limited to, channelization of streams, construction of impoundments, and issuance of permits for mineral exploration and mining. The Service will work with the involved agencies to secure protection and proper management of *Cardamine micranthera* while accommodating agency activities to the extent possible.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general trade prohibitions and exceptions that

apply to all endangered plants. With respect to *Cardamine micranthera*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, would apply. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. In addition, for listed plants the 1988 amendments to the Act (Pub. L. 100-478) prohibit (1) their malicious damage or destruction on Federal lands, and (2) their removal, cutting, digging, or damaging or destroying in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued, since *Cardamine micranthera* is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, P.O. Box 27329, Central Station, Washington, DC 20038-7329 (202/343-4955).

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning any aspect of this proposed rule are hereby

solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Cardamine micranthera*;

(2) The location of any additional populations of *Cardamine micranthera* and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range and distribution of this species; and,

(4) Current or planned activities in the subject area and their possible impacts on *Cardamine micranthera*.

Final promulgation of any regulation on *Cardamine micranthera* will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests must be made in writing and addressed to the Field Supervisor, Asheville Field Office (see ADDRESSES section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

Cooper, J., S. Robinson, and J. Funderburg. 1977. Endangered and threatened plants

and animals of North Carolina; proceedings of the symposium on endangered and threatened biota of North Carolina. North Carolina State Museum of Natural History, Raleigh, North Carolina. pp 101-102.

Leonard, S. 1986. Pursuing the small-anthered bittercress. North Carolina Wildflower Preservation Society, Spring Newsletter. pp 8-10.

Radford, A., H. Ahles, and C. Bell. 1964. Manual of the vascular flora of the Carolinas. University of North Carolina Press, Chapel Hill. pp. 507-508.

Rollins, R.C. 1940. A new *Cardamine* from North Carolina. Castanea 5(5):877-88.

Author

The primary author of this proposed rule is Ms. Nora Murdock, Asheville Field Office, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259-0321 or FTS 672-0321).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Proposed Regulation Promulgation

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411; Pub. L. 100-478, 102 Stat. 2306 (16 U.S.C. 1531 *et seq.*); Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. It is proposed to amend § 17.12(h) by adding the following, in alphabetical order under the family Brassicaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and Threatened plants.

* * * * *
(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Brassicaceae—Mustard family						
<i>Cardamine micranthera</i> ...	Small-anthered bittercress.	U.S.A. (NC).....	E.....		NA.....	NA.

Dated: December 22, 1988.

Becky Norton Dunlop,

Assistant Secretary for Fish and Wildlife and Parks.

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